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IS 7863 (1975): Fertilizer Physical Mixtures [FAD 7: Soil Quality and Gertilizers]

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(Reaffirmed 1990)

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**SPECIFICATION FOR**  
**FERTILIZER PHYSICAL MIXTURES**  
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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

Gr 2

*January 1976*

# Indian Standard

## SPECIFICATION FOR FERTILIZER PHYSICAL MIXTURES

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AMENDMENT NO. 1 DECEMBER 2000  
TO  
IS 7863 : 1975 SPECIFICATION FOR FERTILIZER  
PHYSICAL MIXTURES

[ *Page 4, clause 2.2, Characteristic(b) under heading, 'For Mixtures Not Containing Superphosphate or Triple Superphosphate as an Ingredient'* ] — Substitute '1.5' for '2.0'.

( PCD 20 )

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Reprography Unit, BIS, New Delhi, India

**AMENDMENT NO. 2 MAY 2012**  
**TO**  
**IS 7863 : 1975 SPECIFICATION FOR FERTILIZER**  
**PHYSICAL MIXTURES**

[*Page 5, clause 3.3(c)*] — Substitute ‘Net quantity of contents,’ for ‘Net mass of contents;’.

(FAD 7)

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Reprography Unit, BIS, New Delhi, India

*Indian Standard*  
SPECIFICATION FOR  
FERTILIZER PHYSICAL MIXTURES

**0 FOREWORD**

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 24 November 1975, after the draft finalized by the Acids and Fertilizers Sectional Committee had been approved by the Chemical Division Council.

**0.2** The NP and NPK fertilizer physical mixtures are made in this country in substantial quantities. In order that these mixtures continue to remain in a serviceable physical condition from the time they are packed to that of their use by a farmer, it is necessary to control their physical characteristics during production and to follow certain practices in their packing, handling and storage during transit and marketing. The detailed analysis of these mixtures varies in order to suit different soils and crops, and presently the State Governments have permitted specific mixtures to be manufactured and marketed. Therefore, while the analysis of individual fertilizer mixtures has been left open in this standard, the provisions with regard to the manner of marking the analysis on the bags and the tolerances in the variation of the actual analysis from that marked on the bag are prescribed in this standard.

**0.3** These fertilizer physical mixtures are not intended to be applied through a drill.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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**1. SCOPE**

**1.1** This standard prescribes the requirements for fertilizer physical mixtures, lays down conditions to be followed in their packing, marking, handling and storage during transit and marketing, and also prescribes the permissible tolerances in the analysis of the mixtures.

**1.1.1** Fertilizer mixtures in granulated form are not covered by this standard.

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\*Rules for rounding off numerical values (*revised*).

## 2. REQUIREMENTS

**2.1 Physical Condition** — The fertilizer mixture when examined in unopened packages shall be in a free flowing condition.

**2.2 Free Acidity and Moisture** — The material shall comply with the requirements given below:

Characteristic	For Mixtures Containing Superphosphate or Triple Superphosphate as an Ingredient	For Mixtures Not Containing Superphosphate or Triple Superphosphate as an Ingredient	Method of Test ( Ref to Cl No. in Appendix A )
a) Free acidity, percent by mass, <i>Max</i>	2.0 ( as phosphorus pentoxide )	1.0 ( as sulphuric acid )	A-1
b) Moisture, percent by mass, <i>Max</i>	5.0	2.0	A-2

**2.3 NPK Analysis** — The percent content of nitrogen, phosphorus and potassium in the fertilizer mixture shall be in accordance with the rules and regulations prescribed by the government and shall be marked on the bag. When the fertilizer mixture is actually analyzed according to the methods laid down in IS : 6092 ( Parts II to IV )\*, the actual analysis found shall not differ from the marked analysis by more than the following tolerances:

a) For percent total nitrogen content, total phosphorus ( as $P_2O_5$ ) content, water soluble phosphorus ( as $P_2O_5$ ) content, and water soluble potash ( as $K_2O$ ) content	Minus 5 percent of the marked percent content for each of them
b) For the sum of all percent nutrient contents mentioned above	Minus 5 percent of the sum of the marked percent contents of all nutrients mentioned in (a)

\*Methods of sampling and test for fertilizers:  
 ( Part II )-1971 Determination of nitrogen.  
 ( Part III )-1971 Determination of phosphorus.  
 ( Part IV )-1971 Determination of potassium.

### 3. PACKING AND MARKING

**3.1** As most of the fertilizer mixtures are hygroscopic it is essential that the packing should be capable of providing adequate protection to the contents from absorption of moisture by the use of inner plastics liner. Further, the packing should be physically strong enough to withstand the normal stresses of handling in stacking, transport and storage.

**3.2** It is recommended that fertilizer mixtures are packed in 50 kg packings or as agreed to between the purchaser and the supplier.

**3.3** The packages shall be securely closed and marked with the following information:

- a) ( N-P-K ) Analysis of the mixtures, N standing for total nitrogen ( ammoniacal/nitrate/urea ) content, P for total phosphorus (  $P_2O_5$  ) content and K for total potash (  $K_2O$  ) content. In addition, the water soluble phosphorus (  $P_2O_5$  ) content shall also be shown;
- b) The words 'Fertilizer Physical Mixture' and specific information if superphosphate or triple superphosphate is one of the ingredients;
- c) Net mass of contents;
- d) Name of the manufacturer and recognized trade-mark, if any; and
- e) Batch number in code or otherwise.

**3.4** The packages may also be marked with the Standard Mark.

**3.4.1** The use of the Standard Mark is governed by the provisions of Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

### 4. HANDLING AND STORAGE

**4.1** Factors to be borne in view in the handling and storage of fertilizer mixtures shall be as prescribed in IS : 5985-1971\*.

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\*Code of practice for handling and storage of bagged fertilizers.

## 5. SAMPLING

**5.1** The method for drawing representative samples of the material shall be as prescribed in IS : 6092 ( Part I )- 1971\*.

**5.2 Sample Preparation** — The bags selected for drawing samples shall be emptied, and the contents of each shall be well-mixed and reduced by the process of coning and quartering.

**5.3 Number of Tests** — Tests for all the requirements given shall be conducted on the composite test samples.

**5.4 Criteria for Conformity** — For declaring the conformity of the lot to the requirements of the specification, the test results on the composite test sample shall satisfy all the requirements specified in 2.

## 6. TEST METHODS

**6.1** Tests for all the requirements shall be carried out according to the methods given in Appendix A and in IS : 6092 ( Parts II to IV and VI )†.

## A P P E N D I X A ( *Clauses 2.2 and 6.1* )

### METHODS OF TEST FOR FERTILIZER PHYSICAL MIXTURES

#### A-1. TEST FOR FREE ACIDITY

**A-1.1 For Mixtures Not Containing Superphosphate or Triple Superphosphate** — Carry out the determination as prescribed in 7 of IS : 6092 ( Part VI )-1971‡, calculating free acidity in terms of sulphuric acid.

**A-1.2 For Mixtures Containing Superphosphate or Triple Superphosphate** — Carry out the determination as prescribed in 11 of IS : 6092 ( Part III )-1971§.

#### A-2. DETERMINATION OF MOISTURE

**A-2.1 Procedure** — Carry out the test as prescribed in 5.3 of IS : 6092 ( Part VI )-1971‡.

\*Methods of sampling and test for fertilizers: Part I Sampling.

†Methods of sampling and test for fertilizers:

( Part II )-1971 Determination of nitrogen.

( Part III )-1971 Determination of phosphorus.

( Part IV )-1971 Determination of potassium.

( Part VI )-1971 Determination of impurities.

‡Methods of sampling and test for fertilizers: Part VI Determination of impurities.

§Methods of sampling and test for fertilizers: Part III Determination of phosphorus.

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